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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,133	07/08/2003	Mary Morabito O'Neill	02W234	8119

7590 06/28/2005

Raytheon Company
Intellectual Property & Licensing, EO/E04/N119
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EXAMINER	
CHAMBERS, TROY	

ART UNIT	PAPER NUMBER
3641	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/615,133	O'NEILL ET AL.	
	Examiner	Art Unit	
	Troy Chambers	3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) *3,5,7,9 and 10* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 2, 4, 6, 8, 11-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 22-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, the Examiner cannot find support in the original specification for the limitation "so as to flow between the hot region and the external viewing location *but not to cool the hot region*". Moreover, thermodynamics require that the plume transfer heat to the agent while the agent transfers a cooling process to the plume until equilibrium is reached.

Claim Rejections - 35 USC § 102

obscure: not clearly seen (Merriam Webster on-line dictionary).

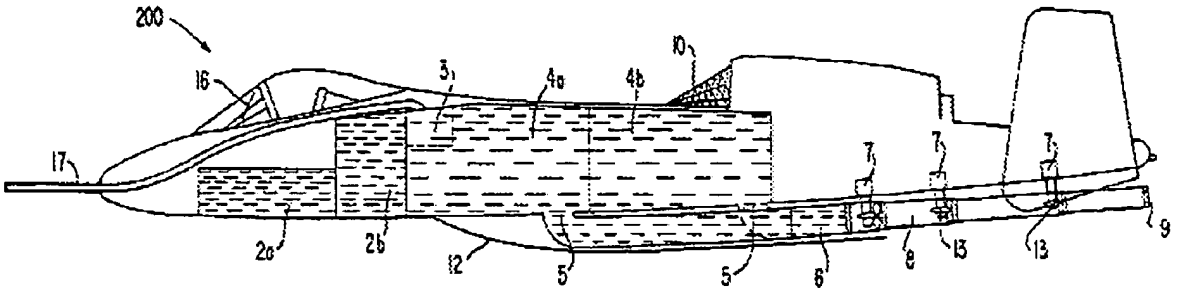
- Aircraft engines inherently produce combustion engine gasses and exhaust gasses in excess of 150 degrees C that are externally viewable either to the naked eye or with infrared equipment.

3. Unless noted otherwise, retardants and fluids ejected from an aircraft are done so at a temperature less than 150 degrees C.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 4, 6, 14, 15, 16, 22, 23, 24 and 26 are rejected under 35 USC 102(b) as being anticipated by U.S. 5549259 issued to Herlik. Herlik discloses a method of obscuring an aircraft from infrared detection from an external viewing location. Specifically, Herlik discloses an airtanker comprising a converted A-10 Thunderbolt aircraft for transporting a pilot and fire retardant. The aircraft has two engines as shown in Figs. 1 and 3. The aircraft is provided with a source of obscuring agent comprising water (col. 8, ll. 12-15). The obscuring agent is ejected out of nozzle 9. A viewing location is established within the stream of fluid. A viewer with infrared capability at this location would have its vision obscured because of the flow of retardant between the viewing location and the engines or plume of exhaust gasses on either side. The fire retardant can be generated on the aircraft (col. 8, ll. 7-16). The A-10 is not disclosed as having an infrared warning system or flares.



6. Claims 1, 2, 4, 6, 11, 14, 16, 22, 23, 24 and 26 are rejected under 35 USC 102(b) in view of US 4979571 issued to MacDonald. MacDonald discloses a method for obscuring an aircraft from infrared detection. Specifically, MacDonald discloses a foam producing apparatus for fighting fires comprising a helicopter as shown in Fig. 4 for transporting a pilot and fire retardant. A viewer at reference number 122 with infrared capabilities can see the heat given off by the engines of the helicopter. A mixture of CO2 and water is used to put out fires (col. 6, ll. 41-66) at 122. A viewer at viewing location 122 would have its view of the engine heat (or exhaust plume) obscured by the flow of fire retardant. The obscurant is generated on the aircraft as shown at col. 6, ll. 41-66+. The method is capable of obscuring an auxiliary unit of the helicopter as well as the main engines. There is no disclosure of flares or infrared systems on the helicopter. The retardant is ejected from the front of the helicopter.

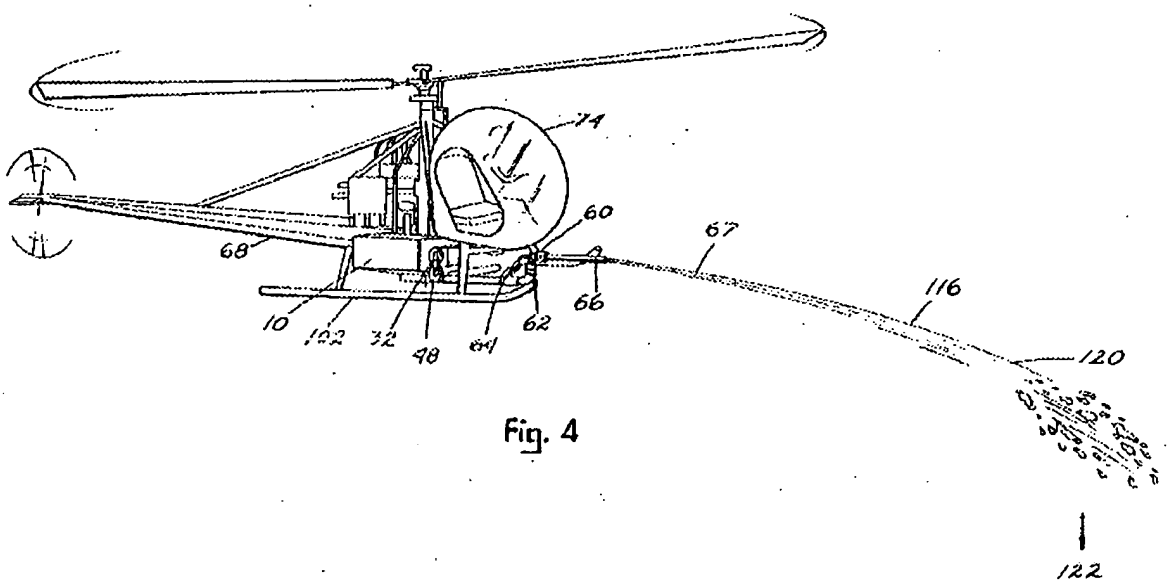


Fig. 4

7. Claims 1, 2, 4, 6, 8, 11, 12, 14, 15, 17, 18, 19, 20, 22, 23, 24 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by the Space Shuttle ("shuttle")and the supporting documents cited herein. Any supporting documents used in the rejection are cited to show the inherent design features of the shuttle. The shuttle has remained the same for about 30 years with the exception of O-ring and crew safety design changes that have no bearing on the applicant's claimed invention.

8. The shuttle has two sets of engines: main engines which are fueled by liquid propellants and solid rocket boosters (SRBs) that are fueled by solid propellant. During the lift-off procedure the shuttle's main engines are brought to 90 percent power, creating a plume with a temperature in excess of 150 degrees Celsius. A person standing under the engines or three miles away would be able to view the plume created by the engines. The shuttle has a "source" of obscuring agent comprising liquid

hydrogen, liquid oxygen and solid propellant (See any one of "Space shuttle main engine biography", "Solid Rocket Boosters", "How Space Shuttles Work" and "Space shuttle main engine"). At T minus 0 seconds the SRBs engines ignite the "source" of obscurant comprising solid propellant. As shown in the photos below, the shuttle is riding on a plume having a temperature greater than 150 degrees Celsius and is followed by great clouds of exhaust material, said exhaust inherently including traces of carbon dioxide and water vapor having a temperature less than that of the plume. As shown below, a viewer directly below or to the side of the shuttle during launch would have its view (infrared or otherwise) obscured by the clouds of obscuring agent.

9. With respect to claim 2, the shuttle transports equipment and astronauts into space.

10. With respect to claim 4, the hot region is a plume flowing from either the main engines or SRBs.

11. With respect to claim 6, the exhaust gasses are generated in the engines of either the SRBs or main engines.

12. With respect to claim 8, the exhaust gas is formed in the internals of the main or SRB engine compartments.

13. With respect to claim 11, refer to the rejection of claim 1.

14. With respect to claim 12, solid particles of carbon particles are inherently present in the exhaust gas cloud.

15. With respect to claim 13, the SRBs contain other sources of fuel such as aluminum, iron oxide which would be present in the exhaust gasses at liftoff. (See, Solid Rocket Boosters).

16.

17. With respect to claim 14, the shuttle has 3 main engines and 2 SRBs.

18. With respect to claim 15, refer to the rejection of claim 1.

19. With respect to claim 17, refer to the rejection of claims 1, 2, 4, 6, 8, 11, 12, 14 and 15.

20. With respect to claim 18, the SRBs contain other sources of fuel such as aluminum, iron oxide and a polymer (See, Solid Rocket Boosters).

21. With respect to claim 19, the exhaust gas is formed in the internals of the main or SRB engine compartments.

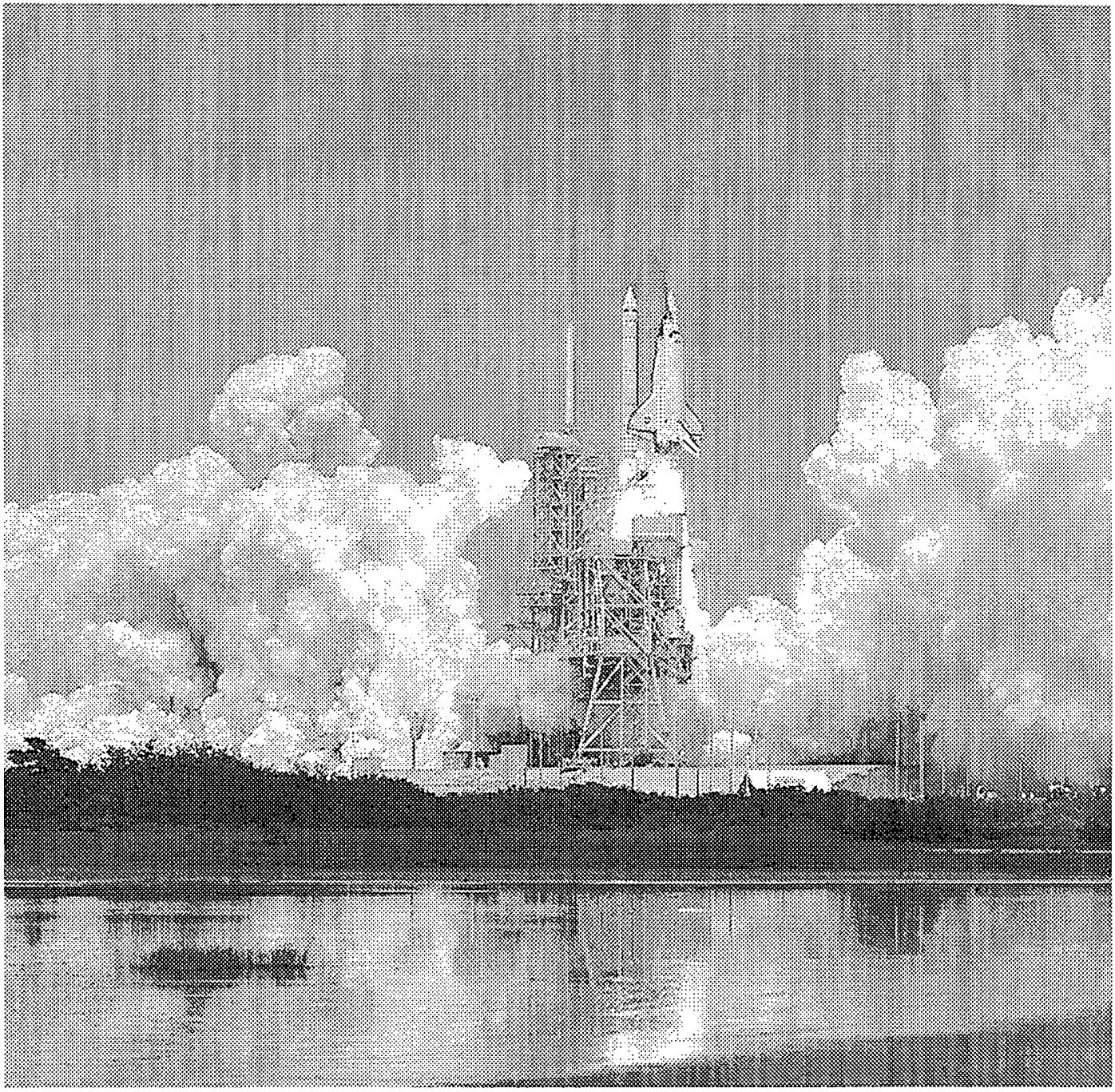
22. With respect to claims 20 and 21, refer to the rejection of the claims above.

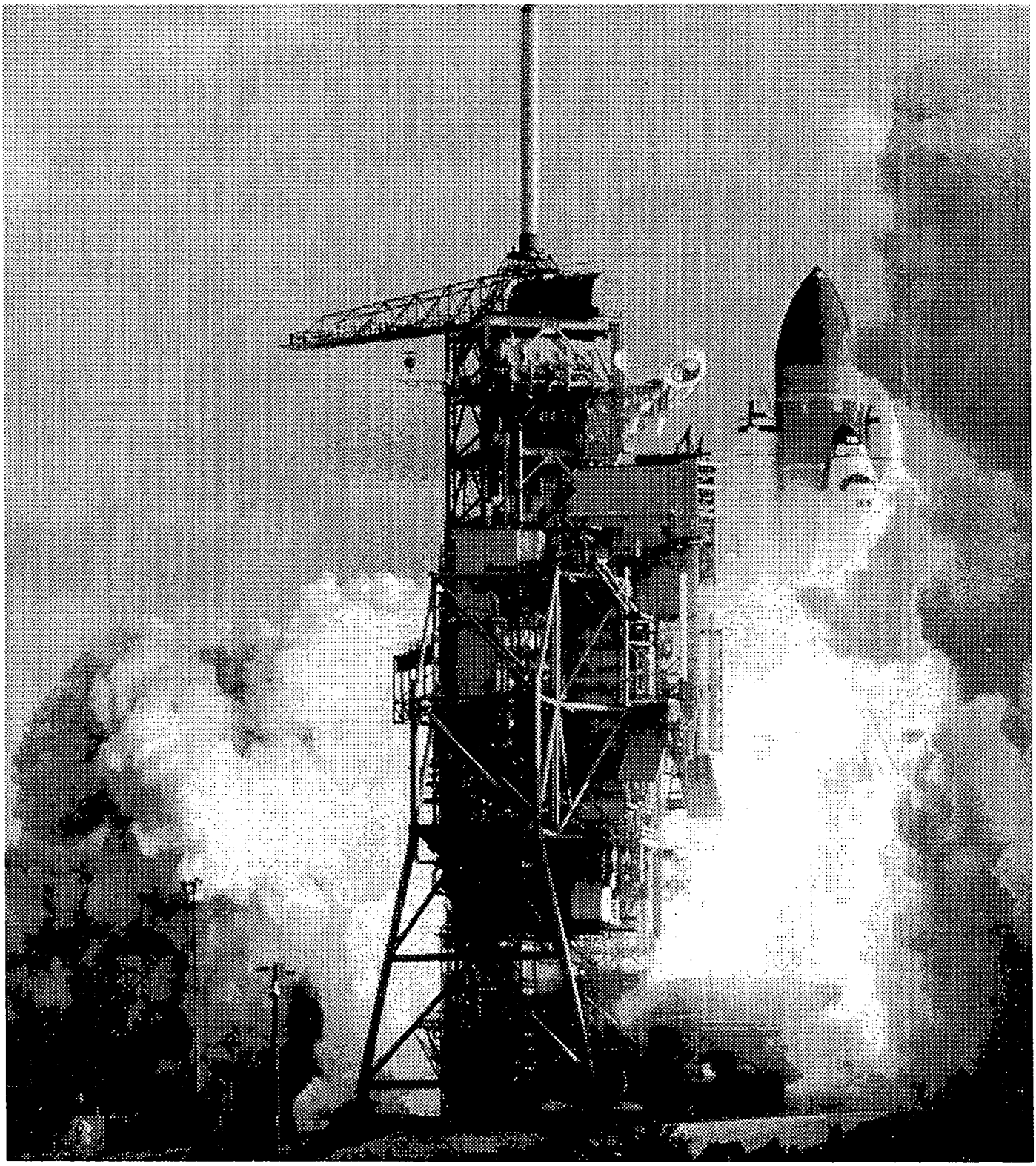
23. With respect to claim 22, the obscuring agent is generated in the engines of the shuttle.

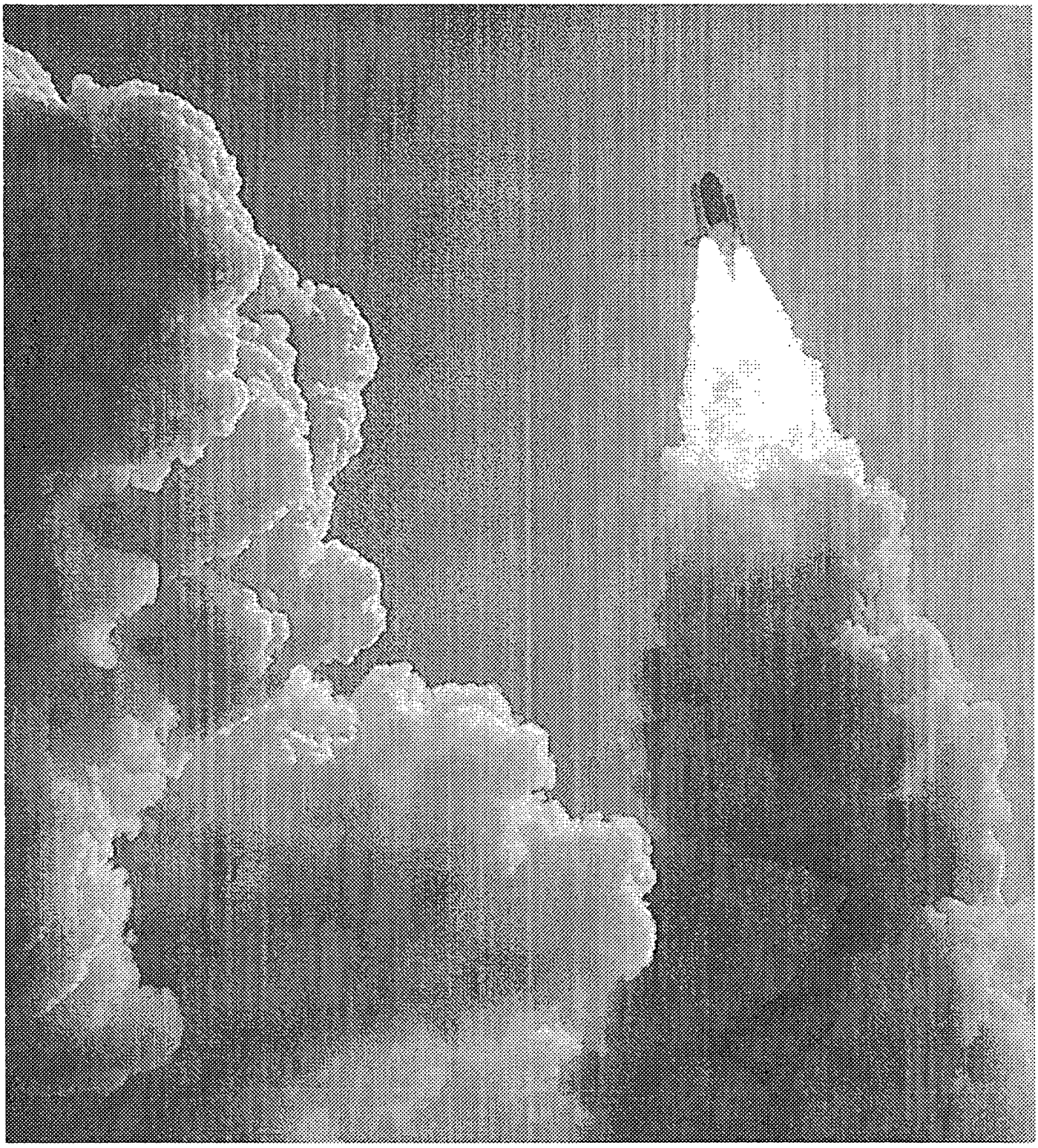
24. With respect to claim 23, the references provided do not disclose the shuttle having flares or infrared threat warning system.

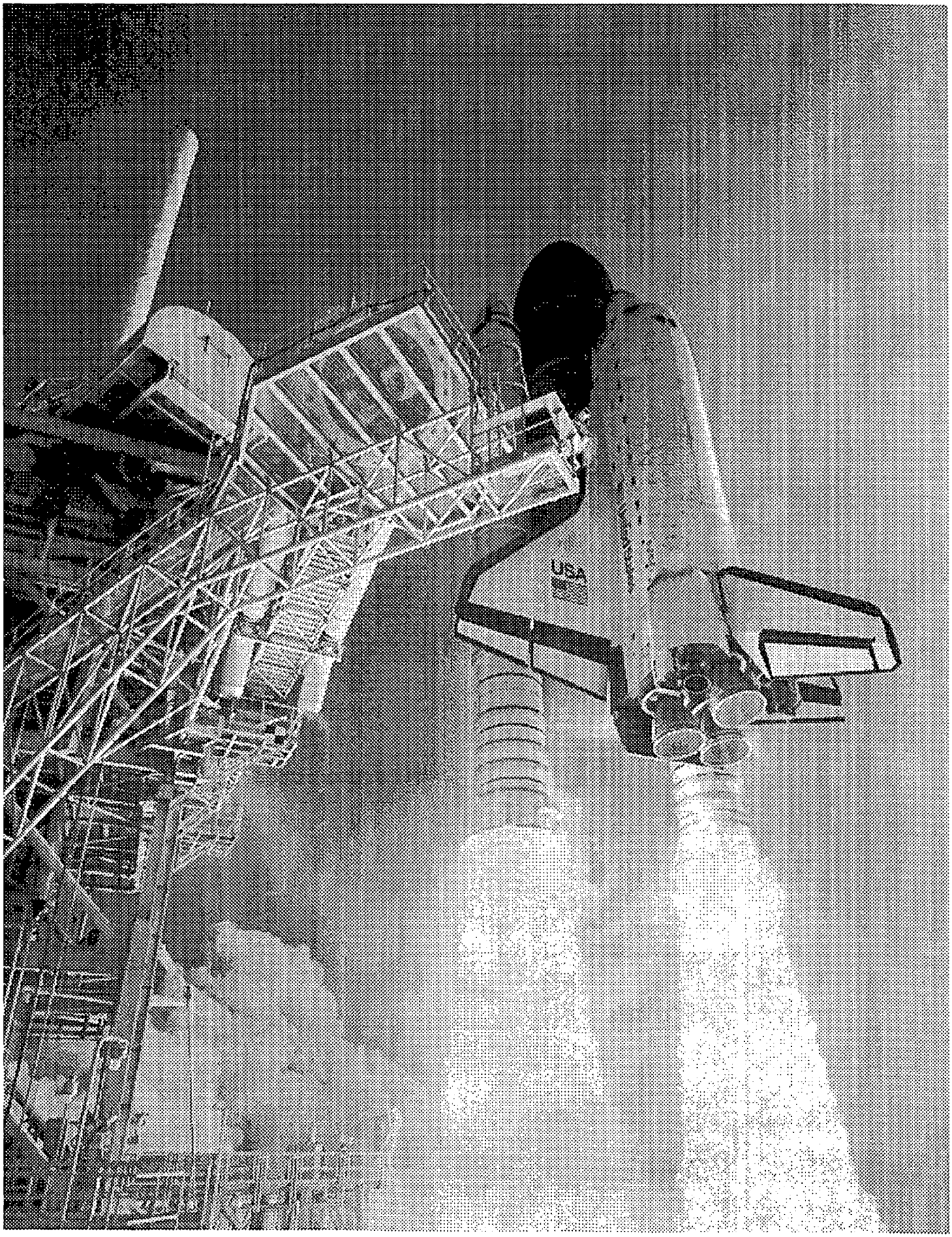
25. With respect to claim 24, the obscuring agent is ejected to the sides and rear of the shuttle.

26. With respect to claim 25, millions of pounds of solid and liquid rocket fuel are consumed and exhausted in a relatively short period which is thousands of times greater than the 4 pounds per second claimed by the applicant.





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Conclusion

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited on form PTO-892 are cited as of interest to show similar methods for obscuring an aircraft.

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Troy Chambers whose telephone number is (571) 272-6874 between the hours of 7:00 a.m. to 3:30 p.m., M-F. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J. Carone, can be reached at (571) 272-6875.